

***Swainsona thompsoniana* (Fabaceae: Faboideae: Galegeae), a new species endemic to the Pilbara bioregion of Western Australia**

Robert W. Davis¹ and P. Johan H. Hurter²

¹Western Australian Herbarium, Department of Environment and Conservation,
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983

²GHD, 239 Adelaide Terrace, Perth, Western Australia 6004

¹Corresponding author, email: robert.davis@dec.wa.gov.au

Abstract

Davis, R.W. & Hurter, P.J.H. *Swainsona thompsoniana* (Fabaceae: Faboideae: Galegeae), a new species endemic to the Pilbara bioregion of Western Australia. *Nuytsia* 23: 1–4 (2013). *Swainsona thompsoniana* R.W.Davis & P.J.H.Hurter is described here as new. An amendment to an existing key for *Swainsona* Salisb. is provided to account for *S. thompsoniana*. *Swainsona thompsoniana* occurs on cracking clay soils from east of Pannawonica to Mount Florence Station and south-east to Tom Price and Wittenoom; a distribution map is included.

Introduction

Swainsona Salisb. is a relatively large genus of approximately 70 taxa endemic to Australia, 47 of which occur in Western Australia. The genus consists mostly of annual and perennial herbs which are predominately found in the drier regions of central Australia. The last revision of the genus was carried out by Joy Thompson (1993), wherein she described 16 new taxa. Although the new species described herein—*S. thompsoniana* R.W.Davis & P.J.H.Hurter—was informally named in 1996 as *Swainsona* sp. Hamersley Station (A.A. Mitchell 196), there have been no new species of *Swainsona* formally described from Western Australia since Thompson (1993). *Swainsona thompsoniana* is a prostrate annual which inhabits cracking clays in the Hamersley Range, occurring east of Pannawonica in a south-easterly band to Tom Price and Wittenoom.

Methods

Measurements of vegetative parts were taken from dried specimens; floral parts were measured from reconstituted material. Where possible, to maintain consistency and comparability, we have followed Thompson's (1993) taxonomic description format. The distribution map of *S. thompsoniana* is based on PERTH specimen data.

Taxonomy

Swainsona thompsoniana R.W.Davis & P.J.H.Hurter, *sp. nov.*

Typus: track to Pindering Well, Hamersley Station, Western Australia [precise locality withheld for conservation reasons], 2 September 1991, *M.E. Trudgen & S. Maley* MET 10645 (*holo*: PERTH 06075398; *iso*: CANB, NSW).

Swainsona sp. Hamersley Station (A.A. Mitchell 196), Western Australian Herbarium, in *FloraBase*, <http://florabase.dec.wa.gov.au> [accessed 9 March 2012].

A prostrate, annual *herb*, to 10 cm high. *Stems* terete, slightly ribbed, with a mixture of sparse, turgid and strigose, basifixed hairs. *Leaves* 1.5–2 cm long, with 3–6 pairs of leaflets; leaflets narrowly obovate to ovate, 4–13 mm long, 2–4 mm wide, glabrous or with a sparse indumentum of turgid to strigose, basifixed hairs on both surfaces, the margins with sparse, strigose hairs, the apex rounded to apiculate. *Stipules* attenuate, 2–2.2 mm long, glabrous except for sparse, strigose hairs on margins. *Racemes* (1.5–)2–6 cm long, 1–3 flowered. *Peduncle* slender, 0.2–0.25(–0.3) mm wide, with sparse, strigose hairs; pulvinus absent. *Bracts* narrowly lanceolate, 2–2.3 mm long. *Flowers* mauve with cream to yellow centres, 5–7 mm long, on slender, sparsely strigose pedicels 2–4 mm long. *Hypanthium* long and tapering, 0.5–0.7 mm long; bracteoles attenuate, 1–1.2 mm long, at the base of the hypanthium. *Calyx* with the tube 1–1.4 mm long, expanded towards the top, often glabrous or with occasional strigose hairs, the lobes narrowly triangular, 2–2.5 mm long, with strigose hairs. *Standard* nearly as broad as long, mauve with a cream to yellow centre, 5.7–6.6 mm long, 5–5.5 mm wide, the apex slightly emarginate, the claw short, 0.3–0.5 mm long. *Wing* mauve, 4.8–5.2 mm long, 1.5–1.7 mm wide, oblong and narrowly obtuse, the claw short and somewhat curved, the auricle deep and long. *Keel* dark mauve to purple fading to cream at base, 6.5–7 mm long, 2.4–2.6 mm deep, apex somewhat narrowly obtuse, claw 2.4–2.6 mm long, auricle truncate to absent. *Ovary* elliptic to narrowly lanceolate, 3.5–4.5 mm long, with dense, appressed hairs on upper edge; style shortly tapering. *Stipe* terete, slender, 2.3–2.7 mm long, with sparse, strigose hairs. *Style* slightly to moderately curved, 2–2.5 mm long, only slightly laterally compressed, shortly tapering towards apex, with hairs along adaxial edge. *Fruit* 38–60 mm long, 5–6 mm wide, elliptic, slightly curved, inflated on either side of a variably intruded suture so that it is sometimes dorsiventrally compressed, with short, strigose to turgid, basifixed, appressed hairs, the texture thin and softly leathery; surface with fine, reticulate veins. *Seeds* c. 20–30, brown, glossy, 2.2–2.7 mm long.

Specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 29 July 2009, *P. Hoffman & R. Butler* RB 047 (PERTH); 24 Aug. 1995, *S. van Leeuwen* 2052 (PERTH); 11 Apr. 1997, *M.E. Trudgen* MET 15137 (PERTH); 28 Apr. 1997, *M.E. Trudgen* MET 15472 (PERTH); 3 Apr. 2009, *M.S. Trudgen* BES MST 355 (PERTH); 28 Aug.–7 Sep. 1998, *M. Maier s.n.* (PERTH 05986540); 30 Mar. 1994, *A.A. Mitchell* PRP 196 (NSW, PERTH); 6 Sep. 1995, *A.A. Mitchell* PRP 706 (NSW, PERTH); 13 Sep. 1995, *A.A. Mitchell* PRP 798 (NSW, PERTH); 4 Sep. 1996, *A.A. Mitchell* PRP 1477 (NSW, PERTH).

Distribution and habitat. *Swainsona thompsoniana* occurs in the Hamersley Range, from east of Pannawonica to Mount Florence Station, then south-east towards Tom Price and Wittenoom (Figure 1). It inhabits open flood plains on heavy clay soils and is often associated with *Eremophila maculata*, *Astrebula pectinata*, *Aristida latifolia*, *Eragrostis xerophila* and *Streptoglossa bubakii*.

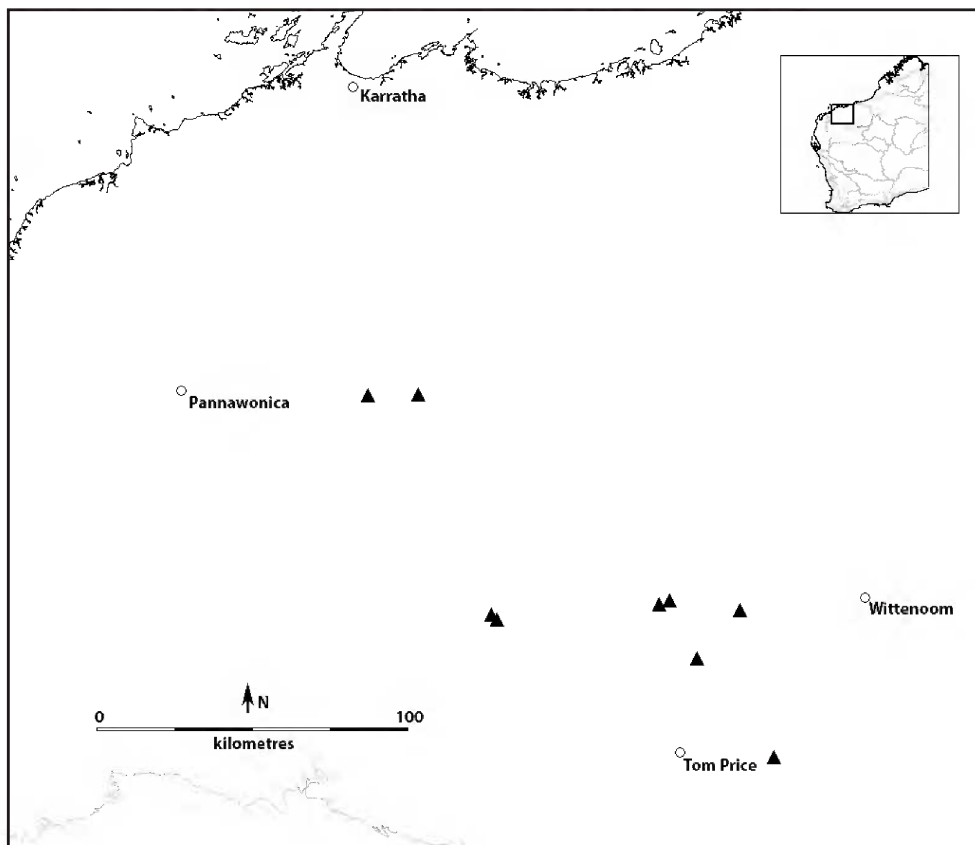


Figure 1. Distribution of *Swainsona thompsoniana* (▲), Western Australia.

Conservation status. There are relatively few collections of *S. thompsoniana* in the Western Australian Herbarium (PERTH); however, it occurs over an area of c. 200 km² and is reserved in two National Parks (Millstream-Chichester and Karijini). Consequently, this species is currently listed by Smith (2012) as Priority Three under the Department of Environment and Conservation's Conservation Codes for Western Australian Flora, as *Swainsona* sp. Hamersley Station (A.A. Mitchell 196).

Phenology. Little is known about this species' phenology. Most collections of *S. thompsoniana* at PERTH were found to be flowering and fruiting from August to September, with one specimen flowering and fruiting in March. Almost all the specimens examined have a mixture of mature fruit, flowers and buds.

Etymology. The species is named after Joy Thompson in recognition of her contribution to the taxonomy of *Swainsona*.

Affinities. In many respects *S. thompsoniana* is similar to *S. campylantha* F.Muell., especially with their diminutive, prostrate habit and long, chartaceous fruit. However, *S. campylantha* can be quickly separated because of its long and prominent, obtuse appendages on the wing petals. While not normally taxonomically useful in *Swainsona*, the size and shape of the leaflets are in this case effective discriminating characters; *S. campylantha* has much longer leaflets (25–70 mm long), which are elliptic to lanceolate, in contrast to *S. thompsoniana*, which has leaflets 5–10 mm long and obovate to ovate in

shape. The two species can also be separated on their geographic distribution. Where *S. campylantha* occurs in the Dampierland bioregion of the Kimberleys, the Tanami Desert bioregion and along the north-eastern border of the Pilbara and the Great Sandy Desert bioregions, *S. thompsoniana* is restricted to the central south-western parts of the Pilbara bioregion.

Amendment to the key to species of *Swainsona* (Thompson 1993: 441)

39: Stem-hairs sparse or absent or if rather dense then appressed

41. Plant perennial and shrublike with the leaflets often reduced or
absent; flowers yellow ***S. laxa***

41: Plant annual; leaflets not reduced; flowers purple to dark red

42. Stems with broad flat or turgid hairs ***S. complanata***

42: Stems glabrous or with fine hairs, or with a mixture of fine and turgid hairs

42a. Stems erect, glabrous or with fine hairs; flowers dark red,
c. 10 mm long ***S. stenodonta***

42a: Stems prostrate, glabrous or with a mixture of fine and turgid hairs;
flowers mauve with yellow centres, 5–7 mm long ***S. thompsoniana***

Acknowledgements

We would like to thank Kevin Thiele, Ryonen Butcher and the referee Peter Jobson for their suggestions towards the improvement of this manuscript, and Steve Dillon for his assistance with the distribution map.

References

- Smith, M.G. (2012). *Threatened and Priority Flora list for Western Australia*. (Department of Environment and Conservation: Kensington, Western Australia.)
- Thompson, J. (1993). *A revision of the genus Swainsona (Fabaceae)*. *Telopea* 5(3): 427–581.
- Western Australian Herbarium (1998–). *FloraBase—the Western Australian Flora*. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/> [accessed 9 March 2012].